TITLE: A HYBRID SUPERVISED NEURAL NETWORK LEARNING USING DIMENSIONALITY REDUCTION,
HESSIAN MATRIX AND PERTURBATION APPROACH
INVENTORS NAME: Ravindra K. Shetty et al.
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100

110

111	112	113
TIME SERIES DATA	TEXT/DOCUMENT DATA	STATIC DATA

114
DECISION AUTOMATION DATA

120
UNIQUE NUMERIC TRANSFORMATION MODULE

115
FUNCTION APPROXIMATION DATA

130
DATABASE

140
RECEIVE MODULE

150
READING MODULE

160
ANALYZER

170
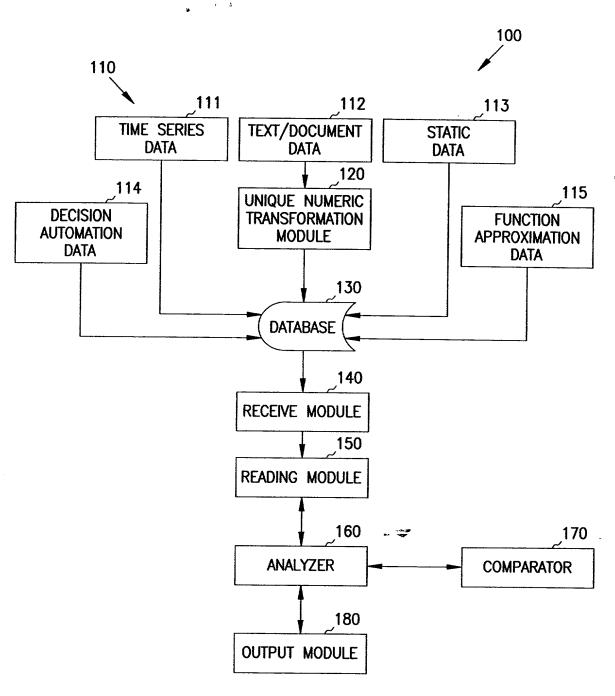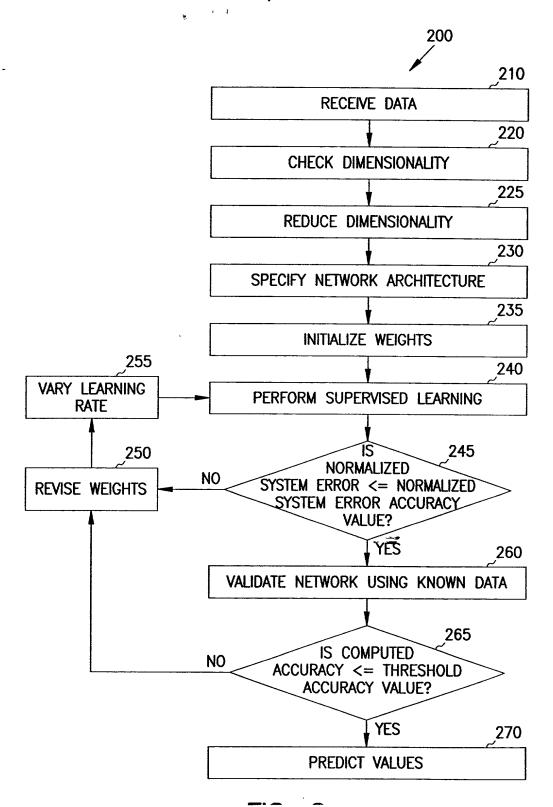COMPARATOR

180
OUTPUT MODULE

FIG. 1

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```
                              210
            ┌─────────────────────────┐
            │      RECEIVE  DATA       │
            └─────────────────────────┘
                         │           220
            ┌─────────────────────────┐
            │  CHECK  DIMENSIONALITY   │
            └─────────────────────────┘
                         │           225
            ┌─────────────────────────┐
            │  REDUCE  DIMENSIONALITY  │
            └─────────────────────────┘
                         │           230
            ┌─────────────────────────┐
            │ SPECIFY NETWORK ARCHITECTURE │
            └─────────────────────────┘
                         │           235
            ┌─────────────────────────┐
            │    INITIALIZE  WEIGHTS   │
            └─────────────────────────┘
                         │           240
  255                    ▼
┌──────────────┐   ┌─────────────────────────┐
│ VARY LEARNING│──▶│ PERFORM SUPERVISED LEARNING │
│     RATE     │   └─────────────────────────┘
└──────────────┘                │
       ▲                        ▼           245
  250  │                   ◇ IS NORMALIZED
┌──────────────┐     NO    SYSTEM ERROR <= NORMALIZED
│ REVISE WEIGHTS│◀───────  SYSTEM ERROR ACCURACY
└──────────────┘           VALUE? ◇
       ▲                        │ YES     260
       │                   ┌─────────────────────────┐
       │                   │ VALIDATE NETWORK USING KNOWN DATA │
       │                   └─────────────────────────┘
       │                        │           265
       │                   ◇ IS COMPUTED
       │           NO      ACCURACY <= THRESHOLD
       └─────────────────  ACCURACY VALUE? ◇
                                │ YES     270
                           ┌─────────────────────────┐
                           │      PREDICT VALUES      │
                           └─────────────────────────┘
```

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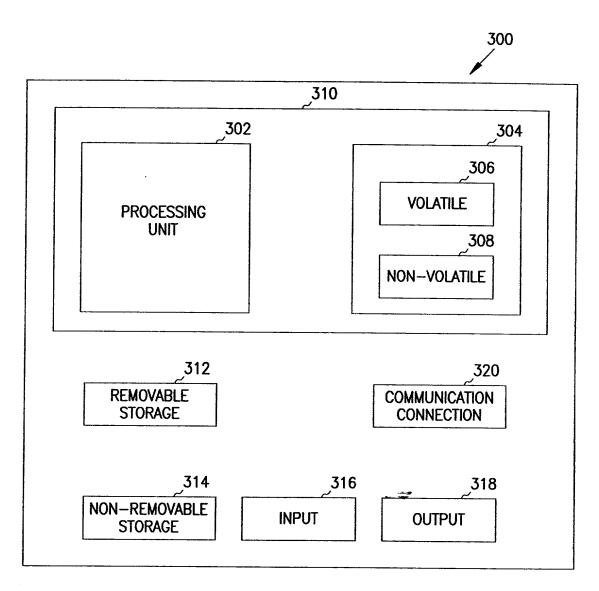DOCKET NO.: 256.100US1

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FIG. 3